

PCT REQUEST

Original (for SUBMISSION)



0	For receiving Office use only	
0-1	International Application No.	
0-2	International Filing Date	
0-3	Name of receiving Office and "PCT International Application"	
0-4	Form PCT/RO/101 PCT Request	
0-4-1	Prepared Using	PCT-SAFE [EASY mode] Version 3.50 (Build 0002.169)
0-5	Petition The undersigned requests that the present international application be processed according to the Patent Cooperation Treaty	
0-6	Receiving Office (specified by the applicant)	Japan Patent Office (RO/JP)
0-7	Applicant's or agent's file reference	664976
I	Title of Invention	METHOD AND APPARATUS FOR TRANSMITTING DATA IN A MULTI-ANTENNA WIRELESS SYSTEM
II	Applicant	
II-1	This person is	applicant only
II-2	Applicant for	all designated States except US
II-4	Name	MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
II-5	Address	1006, Oaza Kadoma, Kadoma-shi, Osaka 5718501 Japan
II-6	State of nationality	JP
II-7	State of residence	JP
II-11	Applicant's registration No. with the Office	000005821
III-1	Applicant and/or inventor	
III-1-1	This person is	applicant and inventor
III-1-2	Applicant for	US only
III-1-4	Name (LAST, First)	LIM, Wei Lih
III-1-5	Address	
III-1-6	State of nationality	
III-1-7	State of residence	

PCT REQUEST

Original (for SUBMISSION)

III-2	Applicant and/or inventor	
III-2-1	This person is	applicant and inventor
III-2-2	Applicant for	US only
III-2-4	Name (LAST, First)	TAN, Pek Yew
III-2-5	Address	
III-2-6	State of nationality	
III-2-7	State of residence	
III-3	Applicant and/or inventor	
III-3-1	This person is	applicant and inventor
III-3-2	Applicant for	US only
III-3-4	Name (LAST, First)	APICHAICHALERMWONGSE, Chalermphol
III-3-5	Address	
III-3-6	State of nationality	
III-3-7	State of residence	
III-4	Applicant and/or inventor	
III-4-1	This person is	applicant and inventor
III-4-2	Applicant for	US only
III-4-4	Name (LAST, First)	ANDO, Kazuhiro
III-4-5	Address	
III-4-6	State of nationality	
III-4-7	State of residence	
III-5	Applicant and/or inventor	
III-5-1	This person is	applicant and inventor
III-5-2	Applicant for	US only
III-5-4	Name (LAST, First)	HARADA, Yasuo
III-5-5	Address	
III-5-6	State of nationality	
III-5-7	State of residence	
IV-1	Agent or common representative; or address for correspondence	
	The person identified below is hereby/ has been appointed to act on behalf of the applicant(s) before the competent International Authorities as:	agent
IV-1-1	Name (LAST, First)	KAWAMIYA, Osamu
IV-1-2	Address	AOYAMA & PARTNERS, IMP Building, 3-7, Shiromi 1-chome, Chuo-ku, Osaka-shi, Osaka 5400001 Japan
IV-1-3	Telephone No.	06-6949-1261
IV-1-4	Facsimile No.	06-6949-0361
IV-1-6	Agent's registration No.	100086405
IV-2	Additional agent(s)	additional agent(s) with same address as

PCT REQUEST

Original (for SUBMISSION)

IV-2-1	Name(s)	first named agent ISHINO, Masahiro(100098280)	
V	DESIGNATIONS		
V-1	The filing of this request constitutes under Rule 4.9(a), the designation of all Contracting States bound by the PCT on the international filing date, for the grant of every kind of protection available and, where applicable, for the grant of both regional and national patents.		
VI-1	Priority claim of earlier national application		
VI-1-1	Filing date	27 February 2004 (27.02.2004)	
VI-1-2	Number	2004-053860	
VI-1-3	Country	JP	
VI-2	Priority document request		
	The receiving Office is requested to prepare and transmit to the international Bureau a certified copy of the earlier application(s) identified above as item(s):	VI-1	
VII-1	International Searching Authority Chosen	European Patent Office (EPO) (ISA/EP)	
VIII	Declarations	Number of declarations	
VIII-1	Declaration as to the identity of the inventor	-	
VIII-2	Declaration as to the applicant's entitlement, as at the international filing date, to apply for and be granted a patent	-	
VIII-3	Declaration as to the applicant's entitlement, as at the international filing date, to claim the priority of the earlier application	-	
VIII-4	Declaration of inventorship (only for the purposes of the designation of the United States of America)	-	
VIII-5	Declaration as to non-prejudicial disclosures or exceptions to lack of novelty	-	
IX	Check list	number of sheets	electronic file(s) attached
IX-1	Request (including declaration sheets)	4	✓
IX-2	Description	31	-
IX-3	Claims	4	-
IX-4	Abstract	1	✓
IX-5	Drawings	19	-
IX-7	TOTAL	59	

PCT REQUEST

Original (for SUBMISSION)

	Accompanying Items	paper document(s) attached	electronic file(s) attached
IX-8	Fee calculation sheet	✓	-
IX-11	Copy of general power of attorney	✓	-
IX-17	PCT-SAFE physical media	-	✓
IX-18	other	revenue stamps of transmittal fee for receiving office	
IX-18	other	certificate of payment of search fee for EPO	
IX-19	Figure of the drawings which should accompany the abstract	9	
IX-20	Language of filing of the international application	English	
X-1	Signature of applicant, agent or common representative		
X-1-1	Name (LAST, First)	ISHINO, Masahiro	
X-1-2	Name of signatory		
X-1-3	Capacity		

FOR RECEIVING OFFICE USE ONLY

10-1	Date of actual receipt of the purported international application	
10-2	Drawings:	
10-2-1	Received	
10-2-2	Not received	
10-3	Corrected date of actual receipt due to later but timely received papers or drawings completing the purported international application	
10-4	Date of timely receipt of the required corrections under PCT Article 11(2)	
10-5	International Searching Authority	ISA/EP
10-6	Transmittal of search copy delayed until search fee is paid	

FOR INTERNATIONAL BUREAU USE ONLY

11-1	Date of receipt of the record copy by the International Bureau	
------	--	--

PCT (ANNEX - FEE CALCULATION SHEET)

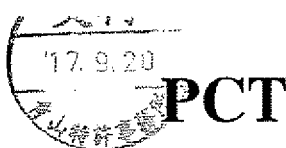
Original (for SUBMISSION)

(This sheet is not part of and does not count as a sheet of the international application)

0	For receiving Office use only		
0-1	International Application No.		
0-2	Date stamp of the receiving Office		
0-4	Form PCT/RO/101 (Annex) PCT Fee Calculation Sheet		
0-4-1	Prepared Using	PCT-SAFE [EASY mode] Version 3.50 (Build 0002.169)	
0-9	Applicant's or agent's file reference		664976
2	Applicant		MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
12	Calculation of prescribed fees		fee amount/multiplier Total amounts (JPY)
12-1	Transmittal fee	T	⇒ 13000
12-2-1	Search fee	S	⇒ 200100
12-2-2	International search to be carried out by	EP	
12-3	International filing fee (first 30 sheets)	i1	123200
12-4	Remaining sheets	29	
12-5	Additional amount	(X) 1300	
12-6	Total additional amount	i2	37700
12-7	i1 + i2 =	i	160900
12-12	EASY Filing reduction	R	-8800
12-13	Total International filing fee (i-R)	I	⇒ 152100
12-14	Fee for priority document		
	Number of priority documents requested	0	
12-15	Fee per document	(X) 1400	
12-16	Total priority document fee:	P	⇒
12-17	TOTAL FEES PAYABLE (T+S+I+P)		⇒ 365200
12-19	Mode of payment		Transmittal fee: revenue stamps Search fee: bank draft International filing fee : bank draft

13-2-3	Validation messages Names	Green? Applicant 1:Telephone No. missing
	Validation messages Names	Green? Applicant 1:Facsimile No. missing
	Validation messages Names	Green? Applicant 2: "Country or territory" indication missing
	Validation messages Names	Green? Applicant 2:Street address missing
	Validation messages Names	Green? Applicant 2:City missing
	Validation messages Names	Green? Applicant 2:Postal code missing
	Validation messages Names	Green? Applicant 2:State of Nationality missing
	Validation messages Names	Green? Applicant 2:State of Residence missing
	Validation messages Names	Green? Applicant 3: "Country or territory" indication missing
	Validation messages Names	Green? Applicant 3:Street address missing
	Validation messages Names	Green? Applicant 3:City missing
	Validation messages Names	Green? Applicant 3:Postal code missing
	Validation messages Names	Green? Applicant 3:State of Nationality missing
	Validation messages Names	Green? Applicant 3:State of Residence missing
	Validation messages Names	Green? Applicant 4: "Country or territory" indication missing
	Validation messages Names	Green? Applicant 4:Street address missing
	Validation messages Names	Green? Applicant 4:City missing
	Validation messages Names	Green? Applicant 4:Postal code missing
	Validation messages Names	Green? Applicant 4:State of Nationality missing
	Validation messages Names	Green? Applicant 4:State of Residence missing
	Validation messages Names	Green? Applicant 5: "Country or territory" indication missing

	Validation messages Names	Green? Applicant 5:Street address missing
	Validation messages Names	Green? Applicant 5:City missing
	Validation messages Names	Green? Applicant 5:Postal code missing
	Validation messages Names	Green? Applicant 5:State of Nationality missing
	Validation messages Names	Green? Applicant 5:State of Residence missing
	Validation messages Names	Green? Applicant 6: "Country or territory" indication missing
	Validation messages Names	Green? Applicant 6:Street address missing
	Validation messages Names	Green? Applicant 6:City missing
	Validation messages Names	Green? Applicant 6:Postal code missing
	Validation messages Names	Green? Applicant 6:State of Nationality missing
	Validation messages Names	Green? Applicant 6:State of Residence missing
13-2-4	Validation messages Priority	Green? Designation of JP and claiming priority of an earlier national application for JP will have the result that the earlier national application will be considered withdrawn after the expiration of 15 months from the filing date of that earlier application. To avoid such withdrawal of the earlier national application, the applicant may withdraw the designation of JP in a separate notice of withdrawal within 15 months from the filing date of that earlier application. For further information on this issue, see Annex B1/JP of the PCT Applicant# Guide.
13-2-7	Validation messages Contents	Green? Reference number for attached copy of general power of attorney not indicated.



From the INTERNATIONAL BUREAU

NOTIFICATION CONCERNING
TRANSMITTAL OF COPY OF INTERNATIONAL
APPLICATION AS PUBLISHED OR REPUBLISHED

To:

KAWAMIYA, Osamu
Aoyama & Partners, Imp Building
3-7, Shiromi 1-chome, Chuo-ku
Osaka-shi, Osaka 5400001
JAPON

Date of mailing (*day/month/year*)
09 September 2005 (09.09.2005)

Applicant's or agent's file reference
664976

IMPORTANT NOTICE

International application No.
PCT/JP2005/003667

International filing date (*day/month/year*)
25 February 2005 (25.02.2005)

Priority date (*day/month/year*)
27 February 2004 (27.02.2004)

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. et al

The International Bureau transmits herewith the following documents:

- ☒ copy of the international application as published by the International Bureau on 09 September 2005 (09.09.2005) under No. WO 2005/083902
- ☐ copy of international application as republished by the International Bureau on under No. WO
- For an explanation as to the reason for this republication of the international application, reference is made to INID codes (15), (48) or (88) (*as the case may be*) on the front page of the attached document.

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Masashi Honda

Facsimile No.+41 22 740 14 35

Facsimile No.+41 22 338 70 10

PATENT COOPERATION TREATY



From the RECEIVING OFFICE

To :

KAWAMIYA, Osamu

AOYAMA & PARTNERS, IMP Building, 3-7, Shi
romi 1-chome, Chuo-ku, Osaka-shi, Osaka 5
400001 Japan

PCT

NOTIFICATION OF THE INTERNATIONAL APPLICATION NUMBER AND OF THE INTERNATIONAL FILING DATE

(PCT Rule 20.5(c))

PCT/ JP2005 / 003667 RO105

Date of Mailing (Day, Month, Year)

15.03.2005

Applicant's or Agent's file reference

664976

Important Notification

International Application No.

PCT/ JP2005 / 003667

International Filing Date (Day, Month, Year)

25.02.2005

Priority Date (Day, Month, Year)

27.02.2004

Applicant

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.

1. The Applicant is hereby notified that the International Application has been accorded the International Application Number and the International Filing Date indicated above.

The Applicant is further notified that The Record Copy of the International Application was transmitted to the International Bureau on 15 . 03 . 2005

NOTE

- a. The International Application Number consists of the term PCT Representing Patent Cooperation Treaty, a 2-letter code for the receiving office (for example, JP for Japan Patent Office), a 4-digit Number representing the year, a slash, and a 6-digit Number.
- b. The International Filing Date shall be accorded to the International Application that fulfills the requirements provided under article 4(1) of law concerning International Applications, etc., pursuant to the PCT.
- c. If there is a change in the person, name, address, etc., notification of change thereof shall be submitted promptly.
- d. If there is an error in the name, address of Applicant indicated in this notification, it shall be corrected on the request.
- e. Upon receipt of the Record Copy from the Receiving Office, The International Bureau shall notify the Applicant accordingly (From PCT/IB/301). If the International Bureau has not received the Record Copy by the expiration of 14 months from the Priority Date, it shall notify the Applicant accordingly (PCT Regulations 22.1(C)).

Name and Address:

JAPAN PATENT OFFICE (RO/JP)

(Postal Code) 100-8915

4-3, Kasumigaseki 3-chome, Chiyoda-ku, Tokyo, Japan

(Tel) 03-3592-1308

Authorized Officer:

Commissioner Japan Patent Office



PATENT COOPERATION TREATY

PCT

NOTIFICATION OF RECEIPT OF
RECORD COPY

(PCT Rule 24.2(a))

From the INTERNATIONAL BUREAU

To:

KAWAMIYA, Osamu
Aoyama & Partners, Imp Building
3-7, Shiromi 1-chome, Chuo-ku
Osaka-shi, Osaka 5400001
Japan

Date of mailing (day/month/year) 01 April 2005 (01.04.2005)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 664976	International application No. PCT/JP2005/003667

The applicant is hereby notified that the International Bureau has received the record copy of the international application as detailed below.

Name(s) of the applicant(s) and State(s) for which they are applicants:

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. (for all designated States except US)
LIM, Wei, Lih et al (for US)

International filing date : 25 February 2005 (25.02.2005)

Priority date(s) claimed : 27 February 2004 (27.02.2004)

Date of receipt of the record copy
by the International Bureau : 17 March 2005 (17.03.2005)

List of designated Offices :

AP : BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW

EA : AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

EP : AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR

OA : BF, BJ, CF, CG, CI, CM, GA, GN, GO, GW, ML, MR, NE, SN, TD, TG

National : AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM,
DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS,
LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK,
SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer:

Emmanuel BERROD (Fax 338 7010)

Facsimile No. (41-22) 338.70.10

Telephone No. (41-22) 338 8389

NOTIFICATION OF RECEIPT OF RECORD COPY

Date of mailing (day/month/year) 01 April 2005 (01.04.2005)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 664976	International application No. PCT/JP2005/003667

ATTENTION

The applicant should carefully check the data appearing in this Notification. In case of any discrepancy between these data and the indications in the international application, the applicant should immediately inform the International Bureau.

In addition, the applicant's attention is drawn to the information contained in the Annex, relating to:

☒ time limits for entry into the national phase - see updated important information (as of April 2002)

☒ requirements regarding priority documents (if applicable)

A copy of this Notification is being sent to the receiving Office and to the International Searching Authority.

INFORMATION ON TIME LIMITS FOR ENTERING THE NATIONAL PHASE

The applicant is reminded that the "national phase" must be entered before each of the designated Offices indicated on the cover sheet of this Notification by paying national fees and furnishing translations, as prescribed by Articles 22 and 39 and the applicable national laws. In addition, the applicant may also have to comply with other special requirements applicable in certain Offices. It is the applicant's responsibility to ensure the necessary steps to enter the national phase are taken in a timely fashion. Most Offices do not issue reminders to applicants in connection with the entry into the national phase.

The applicable time limit for entering the national phase will, subject to what is said in the following paragraph, be **30 MONTHS** from the priority date, not only in respect of any elected Office if a demand for international preliminary examination is filed before the expiration of 19 months from the priority date (see Article 39(1)), but also in respect of any designated Office, in the absence of filing of such demand, where Article 22(1) as modified with effect from 1 April 2002 applies in respect of that designated Office. For further details, see PCT Gazette No. 44/2001 of 1 November 2001, pages 19926, 19932 and 19934, as well as the PCT Newsletter, October and November 2001 and February 2002 issues.

In practice, time limits other than the 30-month time limit will continue to apply, for various periods of time, in respect of certain designated or elected Offices. For regular updates on the applicable time limits (20, 21, 30 or 31 months, or other time limit), Office by Office, refer to the PCT Gazette ("Section IV" part published on a weekly basis), to the PCT Newsletter (on a monthly basis) and to the relevant National Chapters in Volume II of the PCT Applicant's Guide (the paper version of which is updated usually twice a year and the Internet version of which is updated usually on a weekly basis). Finally, a cumulative table of all applicable time limits for entering the national phase is available from WIPO's Internet site, via links from various pages the site including those of the Gazette, Newsletter and Guide, at <http://www.wipo.int/pct/en/index.html>.

Information about the requirements for filing a demand for international preliminary examination is set out in the PCT Applicant's Guide, Volume I/A, Chapter IX. Note that only an applicant who is a national or resident of a PCT Contracting State which is bound by Chapter II has the right to file a demand for international preliminary examination (at present, all PCT Contracting States are bound by Chapter II).

REQUIREMENTS REGARDING PRIORITY DOCUMENTS

For applicants who have not yet complied with the requirements regarding priority documents, the following is recalled.

Where the priority of an earlier national, regional or international application is claimed, the applicant must submit a copy of the said earlier application, certified by the authority with which it was filed ("the priority document") to the receiving Office (which will transmit it to the International Bureau) or directly to the International Bureau, before the expiration of 16 months from the priority date, provided that any such priority document may still be submitted to the International Bureau before that date of international publication of the international application, in which case that document will be considered to have been received by the International Bureau on the last day of the 16-month time limit (Rule 17.1(a)).

Where the priority document is issued by the receiving Office, the applicant may, instead of submitting the priority document, request the receiving Office to prepare and transmit the priority document to the International Bureau. Such request must be made before the expiration of the 16-month time limit and may be subjected by the receiving Office to the payment of a fee (Rule 17.1(b)).

If the priority document concerned is not submitted to the International Bureau or if the request to the receiving Office to prepare and transmit the priority document has not been made (and the corresponding fee, if any, paid) within the applicable time limit indicated under the preceding paragraphs, any designated State may disregard the priority claim, provided that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within the time limit which is reasonable under the circumstances (Rule 17.1(c)).

Where several priorities are claimed, the priority date to be considered for the purposes of computing the 16-month time limit (and all other PCT time limits) is the filing date of the earliest application whose priority is claimed (Article 2(xi)(b)).



From the INTERNATIONAL BUREAU

PCTNOTIFICATION CONCERNING
SUBMISSION OR TRANSMITTAL
OF PRIORITY DOCUMENT

(PCT Administrative Instructions, Section 411)

To:

KAWAMIYA, Osamu
Aoyama & Partners, Imp Building
3-7, Shiromi 1-chome, Chuo-ku
Osaka-shi, Osaka 5400001
JAPON

Date of mailing (day/month/year) 03 June 2005 (03.06.2005)	
Applicant's or agent's file reference 664976	IMPORTANT NOTIFICATION
International application No. PCT/JP05/003667	International filing date (day/month/year) 25 February 2005 (25.02.2005)
International publication date (day/month/year)	Priority date (day/month/year) 27 February 2004 (27.02.2004)
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD. et al	

1. By means of this Form, which replaces any previously issued notification concerning submission or transmittal of priority documents, the applicant is hereby notified of the date of receipt by the International Bureau of the priority document(s) relating to all earlier application(s) whose priority is claimed. Unless otherwise indicated by the letters "NR", in the right-hand column or by an asterisk appearing next to a date of receipt, the priority document concerned was submitted or transmitted to the International Bureau in compliance with Rule 17.1(a) or (b).
2. (If applicable) The letters "NR" appearing in the right-hand column denote a priority document which, on the date of mailing of this Form, had not yet been received by the International Bureau under Rule 17.1(a) or (b). Where, under Rule 17.1(a), the priority document must be submitted by the applicant to the receiving Office or the International Bureau, but the applicant fails to submit the priority document within the applicable time limit under that Rule, the attention of the applicant is directed to Rule 17.1(c) which provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.
3. (If applicable) An asterisk (*) appearing next to a date of receipt, in the right-hand column, denotes a priority document submitted or transmitted to the International Bureau but not in compliance with Rule 17.1(a) or (b) (the priority document was received after the time limit prescribed in Rule 17.1(a) or the request to prepare and transmit the priority document was submitted to the receiving Office after the applicable time limit under Rule 17.1(b)). Even though the priority document was not furnished in compliance with Rule 17.1(a) or (b), the International Bureau will nevertheless transmit a copy of the document to the designated Offices, for their consideration. In case such a copy is not accepted by the designated Office as the priority document, Rule 17.1(c) provides that no designated Office may disregard the priority claim concerned before giving the applicant an opportunity, upon entry into the national phase, to furnish the priority document within a time limit which is reasonable under the circumstances.

<u>Priority date</u>	<u>Priority application No.</u>	<u>Country or regional Office or PCT receiving Office</u>	<u>Date of receipt of priority document</u>
27 February 2004 (27.02.2004)	2004-053860	JP	14 April 2005 (14.04.2005)

The International Bureau of WIPO
34, chemin des Colombettes
1211 Geneva 20, Switzerland

Authorized officer

Wetzler Arounni

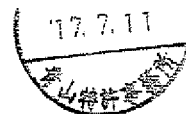
Facsimile No. +41 22 740 14 35

Facsimile No. +41 22 338 70 10

Telephone No. +41 22 338 8359

From the INTERNATIONAL SEARCHING AUTHORITY

PCT



To:

AOYAMA & PARTNERS
Attn. Kawamiya, Osamu
IMP Building
1-3-7, Shiromi, Chuo-ku
Osaka-shi, Osaka 540-0001
JAPAN

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL SEARCH REPORT AND
THE WRITTEN OPINION OF THE INTERNATIONAL
SEARCHING AUTHORITY, OR THE DECLARATION

(PCT Rule 44.1)

Date of mailing (day/month/year) 11/07/2005	
Applicant's or agent's file reference 664976	FOR FURTHER ACTION See paragraphs 1 and 4 below
International application No. PCT/JP2005/003667	International filing date (day/month/year) 25/02/2005
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD.	

1. ☒ The applicant is hereby notified that the international search report and the written opinion of the International Searching Authority have been established and are transmitted herewith.

Filing of amendments and statement under Article 19:

The applicant is entitled, if he so wishes, to amend the claims of the International Application (see Rule 46):

When? The time limit for filing such amendments is normally 2 months from the date of transmittal of the international Search Report; however, for more details, see the notes on the accompanying sheet.

Where? Directly to the International Bureau of WIPO, 34 chemin des Colombettes
1211 Geneva 20, Switzerland, Facsimile No.: (41-22) 740.14.35

For more detailed instructions, see the notes on the accompanying sheet.

2. ☐ The applicant is hereby notified that no international search report will be established and that the declaration under Article 17(2)(a) to that effect and the written opinion of the International Searching Authority are transmitted herewith.
3. ☐ **With regard to the protest** against payment of (an) additional fee(s) under Rule 40.2, the applicant is notified that:

- ☐ the protest together with the decision thereon has been transmitted to the International Bureau together with the applicant's request to forward the texts of both the protest and the decision thereon to the designated Offices.
- ☐ no decision has been made yet on the protest; the applicant will be notified as soon as a decision is made.

4. Reminders


Shortly after the expiration of **18 months** from the priority date, the international application will be published by the International Bureau. If the applicant wishes to avoid or postpone publication, a notice of withdrawal of the international application, or of the priority claim, must reach the International Bureau as provided in Rules 90bis.1 and 90bis.3, respectively, before the completion of the technical preparations for international publication.

The applicant may submit comments on an informal basis on the written opinion of the International Searching Authority to the International Bureau. The International Bureau will send a copy of such comments to all designated Offices unless an international preliminary examination report has been or is to be established. These comments would also be made available to the public but not before the expiration of 30 months from the priority date.

Within **19 months** from the priority date, but only in respect of some designated Offices, a demand for international preliminary examination must be filed if the applicant wishes to postpone the entry into the national phase until **30 months** from the priority date (in some Offices even later); otherwise, the applicant must, **within 20 months** from the priority date, perform the prescribed acts for entry into the national phase before those designated Offices.

In respect of other designated Offices, the time limit of **30 months** (or later) will apply even if no demand is filed within 19 months.

See the Annex to Form PCT/IB/301 and, for details about the applicable time limits, Office by Office, see the *PCT Applicant's Guide*, Volume II, National Chapters and the WIPO Internet site.

Name and mailing address of the International Searching Authority  European Patent Office, P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Rosa Poquet Oliver
--	--

These Notes are intended to give the basic instructions concerning the filing of amendments under article 19. The Notes are based on the requirements of the Patent Cooperation Treaty, the Regulations and the Administrative Instructions under that Treaty. In case of discrepancy between these Notes and those requirements, the latter are applicable. For more detailed information, see also the PCT Applicant's Guide, a publication of WIPO.

In these Notes, "Article", "Rule", and "Section" refer to the provisions of the PCT, the PCT Regulations and the PCT Administrative Instructions respectively.

INSTRUCTIONS CONCERNING AMENDMENTS UNDER ARTICLE 19

The applicant has, after having received the international search report, one opportunity to amend the claims of the international application. It should however be emphasized that, since all parts of the international application (claims, description and drawings) may be amended during the international preliminary examination procedure, there is usually no need to file amendments of the claims under Article 19 except where, e.g. the applicant wants the latter to be published for the purposes of provisional protection or has another reason for amending the claims before international publication. Furthermore, it should be emphasized that provisional protection is available in some States only.

What parts of the international application may be amended?

Under Article 19, only the claims may be amended.

During the international phase, the claims may also be amended (or further amended) under Article 34 before the International Preliminary Examining Authority. The description and drawings may only be amended under Article 34 before the International Examining Authority.

Upon entry into the national phase, all parts of the international application may be amended under Article 28 or, where applicable, Article 41.

When?

Within 2 months from the date of transmittal of the international search report or 16 months from the priority date, whichever time limit expires later. It should be noted, however, that the amendments will be considered as having been received on time if they are received by the International Bureau after the expiration of the applicable time limit but before the completion of the technical preparations for international publication (Rule 46.1).

Where not to file the amendments?

The amendments may only be filed with the International Bureau and not with the receiving Office or the International Searching Authority (Rule 46.2).

Where a demand for international preliminary examination has been/is filed, see below.

How?

Either by cancelling one or more entire claims, by adding one or more new claims or by amending the text of one or more of the claims as filed.

A replacement sheet must be submitted for each sheet of the claims which, on account of an amendment or amendments, differs from the sheet originally filed.

All the claims appearing on a replacement sheet must be numbered in Arabic numerals. Where a claim is cancelled, no renumbering of the other claims is required. In all cases where claims are renumbered, they must be renumbered consecutively (Administrative Instructions, Section 205(b)).

The amendments must be made in the language in which the international application is to be published.

What documents must/may accompany the amendments?

Letter (Section 205(b)):

The amendments must be submitted with a letter.

The letter will not be published with the international application and the amended claims. It should not be confused with the "Statement under Article 19(1)" (see below, under "Statement under Article 19(1)").

The letter must be in English or French, at the choice of the applicant. However, if the language of the international application is English, the letter must be in English; if the language of the international application is French, the letter must be in French.

The letter must indicate the differences between the claims as filed and the claims as amended. It must, in particular, indicate, in connection with each claim appearing in the international application (it being understood that identical indications concerning several claims may be grouped), whether

- (i) the claim is unchanged;
- (ii) the claim is cancelled;
- (iii) the claim is new;
- (iv) the claim replaces one or more claims as filed;
- (v) the claim is the result of the division of a claim as filed.

The following examples illustrate the manner in which amendments must be explained in the accompanying letter:

1. [Where originally there were 48 claims and after amendment of some claims there are 51]:
"Claims 1 to 29, 31, 32, 34, 35, 37 to 48 replaced by amended claims bearing the same numbers; claims 30, 33 and 36 unchanged; new claims 49 to 51 added."
2. [Where originally there were 15 claims and after amendment of all claims there are 11]:
"Claims 1 to 15 replaced by amended claims 1 to 11."
3. [Where originally there were 14 claims and the amendments consist in cancelling some claims and in adding new claims]:
"Claims 1 to 6 and 14 unchanged; claims 7 to 13 cancelled; new claims 15, 16 and 17 added." or
"Claims 7 to 13 cancelled; new claims 15, 16 and 17 added; all other claims unchanged."
4. [Where various kinds of amendments are made]:
"Claims 1-10 unchanged; claims 11 to 13, 18 and 19 cancelled; claims 14, 15 and 16 replaced by amended claim 14; claim 17 subdivided into amended claims 15, 16 and 17; new claims 20 and 21 added."

"Statement under article 19(1)" (Rule 46.4)

The amendments may be accompanied by a statement explaining the amendments and indicating any impact that such amendments might have on the description and the drawings (which cannot be amended under Article 19(1)).

The statement will be published with the international application and the amended claims.

It must be in the language in which the international application is to be published.

It must be brief, not exceeding 500 words if in English or if translated into English.

It should not be confused with and does not replace the letter indicating the differences between the claims as filed and as amended. It must be filed on a separate sheet and must be identified as such by a heading, preferably by using the words "Statement under Article 19(1)."

It may not contain any disparaging comments on the international search report or the relevance of citations contained in that report. Reference to citations, relevant to a given claim, contained in the international search report may be made only in connection with an amendment of that claim.

Consequence if a demand for international preliminary examination has already been filed

If, at the time of filing any amendments under Article 19, a demand for international preliminary examination has already been submitted, the applicant must preferably, at the same time of filing the amendments with the International Bureau, also file a copy of such amendments with the International Preliminary Examining Authority (see Rule 62.2(a), first sentence).

Consequence with regard to translation of the international application for entry into the national phase

The applicant's attention is drawn to the fact that, where upon entry into the national phase, a translation of the claims as amended under Article 19 may have to be furnished to the designated/elected Offices, instead of, or in addition to, the translation of the claims as filed.

For further details on the requirements of each designated/elected Office, see Volume II of the PCT Applicant's Guide.

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 664976	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/JP2005/003667	International filing date (day/month/year) 25/02/2005	(Earliest) Priority Date (day/month/year) 27/02/2004
Applicant MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD.		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 4 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☐ **Unity of invention is lacking** (see Box III).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. With regard to the **drawings**,

- a. the figure of the **drawings** to be published with the abstract is Figure No. 9

☒ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☐ none of the figures is to be published with the abstract.

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 H04B7/06 H04L1/06		
According to international Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 H04B H04L		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 486 729 A (AMERICAN TELEPHONE AND TELEGRAPH COMPANY; AT&T CORP) 27 May 1992 (1992-05-27) column 12, line 7 - column 16, line 52; figures 8,11,12,14	1,9,18
X	EP 1 231 734 A (LUCENT TECHNOLOGIES INC) 14 August 2002 (2002-08-14)	1,3,9,11,18
Y	paragraphs '0003! - '0012! - '0014!, '0039! - '0049!	2,8,10,16
A	paragraphs '0062! - '0067!, '0078! - '0085!; figure 6	4-7,12-15
Y	US 2002/067309 A1 (BAKER MATTHEW P.J ET AL) 6 June 2002 (2002-06-06) paragraph '0004!	2,10
-/--		
<div style="display: flex; justify-content: space-between;"> <input checked="" type="checkbox"/> Further documents are listed in the continuation of box C. <input checked="" type="checkbox"/> Patent family members are listed in annex. </div>		
* Special categories of cited documents :		
<div style="display: flex;"> <div style="flex: 1;"> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document but published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p> </div> <div style="flex: 1;"> <p>*T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>*&* document member of the same patent family</p> </div> </div>		
Date of the actual completion of the international search	Date of mailing of the international search report	
20 June 2005	11/07/2005	
Name and mailing address of the ISA European Patent Office, P.B. 5816 Patentlaan 2 NL - 2280 HV Rijswijk Tel: (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Authorized officer Ernst, C	

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2004/032910 A1 (HORNG JYHCHAU ET AL) 19 February 2004 (2004-02-19)	18
A	paragraph '0009!; figure 2 -----	1,9
X	US 2003/218973 A1 (OPREA ALEXANDRU M ET AL) 27 November 2003 (2003-11-27)	17,18
Y	paragraphs '0042! - '0068!, '0088! - '0104!; figures 1,5b -----	8,16
X	US 2003/210663 A1 (EVERSON JOHN ET AL) 13 November 2003 (2003-11-13) paragraph '0025!; claim 6; figures 4,6 -----	17

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
EP 0486729	A	27-05-1992	CA	2030038 A1	16-05-1992
			US	5029185 A	02-07-1991
			EP	0486729 A1	27-05-1992
			HK	145496 A	09-08-1996
			US	5056112 A	08-10-1991
EP 1231734	A	14-08-2002	US	2002142723 A1	03-10-2002
			EP	1231734 A1	14-08-2002
			JP	2002314510 A	25-10-2002
US 2002067309	A1	06-06-2002	CN	1408150 A	02-04-2003
			WO	0245293 A2	06-06-2002
			EP	1346495 A2	24-09-2003
			JP	2004515152 T	20-05-2004
US 2004032910	A1	19-02-2004	JP	2004166232 A	10-06-2004
			US	2004033782 A1	19-02-2004
US 2003218973	A1	27-11-2003	AU	2003233284 A1	12-12-2003
			WO	03100986 A2	04-12-2003
US 2003210663	A1	13-11-2003	AU	2003213798 A1	03-11-2003
			WO	03090485 A1	30-10-2003

PCT



To:

see form PCT/ISA/220

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2005/003667

International filing date (day/month/year)
25.02.2005

Priority date (day/month/year)
27.02.2004

International Patent Classification (IPC) or both national classification and IPC
H04B7/06, H04L1/06

Applicant
MATSUSHITA ELECTRIC INDUSTRIAL CO. LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Ernst, C

Telephone No. +49 89 2399-8958



Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

Box No. IV Lack of unity of invention

1. ☐ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☐ not paid additional fees.
2. ☒ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☒ all parts.
 - ☐ the parts relating to claims Nos.

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-18
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-18
Industrial applicability (IA)	Yes: Claims	1-18
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Reference is made to the following documents:

- D1: EP-A-0 486 729 (AMERICAN TELEPHONE AND TELEGRAPH COMPANY; AT&T CORP) 27 May 1992 (1992-05-27)
- D2: EP-A-1 231 734 (LUCENT TECHNOLOGIES INC) 14 August 2002 (2002-08-14)
- D3: US 2002/067309 A1 (BAKER MATTHEW P.J ET AL) 6 June 2002 (2002-06-06)
- D4: US 2004/032910 A1 (HORNG JYHCHAU ET AL) 19 February 2004 (2004-02-19)
- D5: US 2003/218973 A1 (OPREA ALEXANDRU M ET AL) 27 November 2003 (2003-11-27)
- D6: US 2003/210663 A1 (EVERSON JOHN ET AL) 13 November 2003 (2003-11-13)

Section IV

There is no common feature between the subject matter of claim 1 (respectively 9) relating to the stratification of a bit stream and the subject matter of claim 17 relating to a poll frame comprising transmitter ID and a frequency set ID.

The only common feature between the subject matter of claims 1 and 9 and the subject-matter of claim 18 is the presence of at least two transmitter antennas in the first station and at least two receiver antennas in the second station. This cannot be considered as an inventive common concept. Further this is also known from D2 or D5.

Section V

Claim 1

D1 relates to a transmitted 2 N dimensional code. Since the subject matter of D1 comprises an interleaved block-coded modulation with built-in time diversity, D1 is pertinent. The architecture (see e.g. Fig. 11, or 14) known from D1 is the same as the

architecture of the subject-matter of the present claim 1. The stream is split into two sub streams, each of which is split into four segments, each segment being stratified.

D1 does not explicitly disclose the presence of at least a first and a second transmitter antennas. Thus the subject-matter of claim 1 is new.

However by parallel transmissions (spatial multiplexing, space time block coding or space frequency block coding) the use of at least two transmitter antennas is a normal routine. Thus claim 1 does not satisfy the requirements of Art. 33(3) PCT.

Starting from D2, the subject-matter of claim 1 differs from the method known from D2 in that each segment is divided into fragments.

Thus the subject-matter of claim 1 is new.

D2 (see e.g. Fig. 6) shows the splitting in two steps from the primitive data stream into 16 strata of data. However, it is obvious for the skilled person that the stratification before recombination for the different transmitter antennas can be achieved also in three steps [(1:4, 1:2, 1:2), (1:2, 1:4, 1:2) or (1:2, 1:2, 1:4)].

Thus claim 1 does not satisfy the requirements of Art. 33(3) PCT.

Claims 2 to 8

These dependent claims represent normal routine for the skilled person. E.g. D3 cites spatial multiplexing, D1 or D4 disclose space time block coding. As disclosed in the present application spatial multiplexing, space time block coding or space frequency block coding are technically equivalent. The use of different frequencies for transmitting an information (frequency diversity) is known to the skilled person.

The use of Inverted Fast Fourier Transformation is a well known feature to the skilled person (see e.g. D5, Fig. 1, "IFFT unit").

Thus, dependent claims 2 to 8 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.

Claim 9

Independent apparatus claim 9 corresponds to independent method claim 1.

Thus, the statements regarding the subject matter of independent method claim 1 apply equivalently to independent apparatus claim 9.

Thus claim 9 does not satisfy the requirements of Art. 33(3) PCT.

Claims 10 to 16

Dependent apparatus claims 10 to 16 correspond to dependent method claims 2 to 8.

Thus, the statements regarding the subject matter of dependent method claim 2 to 8 apply equivalently to dependent apparatus claim 10 to 16.

Thus, dependent claims 10 to 16 do not contain any features which, in combination with the features of any claim to which they refer, meet the requirements of the PCT in respect of inventive step.

Claim 17

Claim 17 is related to a poll frame . Poll frame using transmitter ID is known (see D5, e.g. paragraph [0123] or D6, e.g. paragraph [0025]).

The use of a frequency set ID for specifying a carrier frequency of a transmission signal from each of the first and second antenna transmitting antennas in the first station is for the skilled person obvious (see e.g. frequency hopping, frequency diversity, ...)

Thus claim 17 does not satisfy the requirements of Art. 33(3) PCT.

Claim 18

The use of a training sequence in the field of telecommunication is well known. Further it is obvious that, if space time block coding or space frequency block coding is used, the bit stream comprises a frequency set indicating the mode used. Without these features it is not possible to demodulate or decode the bit stream (see e.g. D5, fig. 5c, the blocs 224, 228, 230, 234, 238).

Thus claim 18 does not satisfy the requirements of Art. 33(3) PCT.

Section VIII

The description discloses four embodiments, the three first are specific embodiments, the fourth shows a general structure (an "overhead embodiment"). According to the text of the description regarding the first three embodiments, it seems that there is no splitting of the sub streams in segments. However the fourth embodiment discloses this clearly, and the figures 9, 10 11 (see e.g. ref. X_{110} , ... X_{1n0} which are the same for all embodiments) suggest

it too. Thus the general embodiment should be in the first place in the description or the text page 15, lines 1 to 7 should be present in the text related to the first three embodiments.

Further the present description page 2, line 8 to page 3, line 14 discloses "means for solving the problems". The different independent claims focus only partially on these means (only parallel transmissions as in claims 1, 9, 18, or only using an unique ID as in claim 17).

Thus, the present application does not satisfy the requirements of Art. 6 PCT (clarity and support in the description).